UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,401	04/03/2006	Josef Artelsmair	ARTELSMAIR-6PCT	5900

25889 7590 05/05/2011

COLLARD & ROE, P.C.
1077 NORTHERN BOULEVARD
ROSLYN, NY 11576

EXAMINER	
NGUYEN, HUNG D	

ART UNIT	PAPER NUMBER
3742	

MAIL DATE	DELIVERY MODE
05/05/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,401	ARTELSMAIR, JOSEF	
	Examiner	Art Unit	
	HUNG NGUYEN	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2,3,6-15,17-26,28-30,32 and 34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2,3,6-15,17-26,28-30,32 and 34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/16/2011 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2-3, 6-15, 17-26, 28-30, 32 and 34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. In claim 15, there is insufficient antecedent basis for "the cold-metal process phase" recited in line 19 in the claim.

5. In claim 30, there is insufficient antecedent basis for "the cold-metal process phase" recited in line 22 in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 2-3, 6-15, 17-21, 23-24 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Hsu (US Pat. 6,717,107) (both previously cited) and Huismann et al. (US Pub. 2004/0016788) (newly cited).

8. Regarding claim 15, Jank et al. discloses a welding apparatus (1) including a welding current source (2), a control device (4), a welding torch (10) and a welding wire (13), wherein different welding parameters are adjustable via at least one device selected from the group consisting of an input device (22) provided on the welding apparatus (1), an output device (22) provided on the welding apparatus (1), and a remote controller wherein an adjustment element (47) for the adjustment of the heat balance or heat input into the workpiece (16) to be worked wherein an adjustment element (47) for the adjustment of the heat balance or heat input into the workpiece (16) to be worked, via a cyclic combination of at least a first welding process phase and a second welding process phase, is arranged on the at least one device. **Note**: Jank et al. discloses a welding apparatus (1) that has an input/output (22) capable of setting and storing of a welding process, various welding parameter (Col. 5, Lines 25-33). Therefore, the adjustment element (47) capable of adjusting to any welding process, parameters to a specific program corresponding to a user defined. Jank et al. does not discloses the first welding process phase has a high energy input and a first material transition and the second welding process phase comprises a cold-metal-transfer phase having a low energy input and a second material transition different from the first material transition, and wherein the first welding process phase has a high energy

phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase, and wherein during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece. Hsu discloses the first welding process phase (Process A) has a high energy input and a first material transition and the second welding process (Process B) phase comprises a cold-metal-transfer phase having a low energy input and a second material transition different from the first material transition, and wherein the first welding process phase has a high energy phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase (Col. 1, Line 66 to Col. 2, Line 1; Col. 5, Line 51 to Col. 6, Line 17) (Fig. 4 below shows the sample cycle between the low heat follow by a high heat during the base current). **Note**: It is known that each welding process has it own parameter which is including voltage, current, wire speed to control the high/low energy thereby to control the droplets to the workpiece. Therefore, it meets the same limitation as the material transition and the first material transition is different to the second material transition. Huismann et al. discloses during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece (Par. 9). It would have been obvious to one of

ordinary skill in the art at the time of the invention was made to utilize in Jank et al., the first welding process phase has a high energy input and a first material transition and the second welding process phase comprises a cold-metal-transfer phase having a low energy input and a second material transition different from the first material transition, and wherein the first welding process phase has a high energy phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase, as taught by Hsu, for the purpose of optimizing the performance of the welding process; during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece, as taught by Huismann et al., for the purpose of better controlling of the melting and the heat to the weld thereby reducing spatter.

9. Regarding claim 17, Jank et al. discloses a selection element is provided for the selection of the welding process phases to be used (Col. 5, Lines 25-33).

10. Regarding claim 18, Jank et al. discloses at least one display is provided for the representation of at least one of the selected welding parameters and the selected welding process phases (Col. 5 Lines 41-48).

11. Regarding claim 19, Jank et al. discloses a selection element is provided for the selection of the material of the workpiece to be worked phases (Col. 5 Lines 41-48, Fig. 3).

12. Regarding claim 20, Jank et al. discloses a selection element is provided for the selection of the material of the employed welding wire (Col. 5 Lines 41-48, Fig. 3).

13. Regarding claim 21, Jank et al. discloses an input/output device 22 (Fig. 1) for adjusting different welding process and parameters. Hsu discloses the first welding process phase is a pulse current phase and a cyclic combination of the second welding process phase with the pulse current phase (Col. 2, Lines 19-22).

14. Regarding claims 23 and 28, Jank et al. discloses an adjustment element is provided for the adjustment of the duration of the respective welding process phase (Col. 5 Lines 41-48, Fig. 3).

15. Regarding claims 24 and 29, Jank et al. discloses a memory (29) is provided for the storage of welding parameter adjustments (Col. 6, Lines 2-8).

16. Regarding claim 30, Jank et al. discloses a method for controlling a welding apparatus and corresponding control device comprising the steps of: igniting an electric arc (Col. 4, Lines 59-65); subsequently carrying out a welding process adjusted according to several different welding parameters and controlled by a control device (4) using a welding current source (2) (Col. 5, Lines 25-63). Jank et al. does not disclose the welding process comprises at least a first welding process phase and a second welding process phase; wherein the first welding process phase has a high energy input and a first material transition and the second welding process phase comprises a cold-metal-transfer phase having a low energy input and a second material transition different from the first material transition; wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the

heat input into a workpiece to be worked; wherein the first welding process phase has a high energy input phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase; and wherein during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece. Hsu discloses the welding process comprises at least a first welding process phase (Process A) and a second welding process phase (Process B); wherein the first welding process phase has a high energy input and a first material transition and the second welding process phase comprises a cold-metal-transfer phase having a low energy input (Col. 1, Line 66 to Col. 2, Line 1; Col. 5, Line 51 to Col. 6, Line 17) (Fig. 4 below shows the sample cycle between the low heat follow by a high heat during the base current) and a second material transition different from the first material transition. **Note**: It is known that each welding process has it own parameters which is including voltage, current , wire speed to control the high/low energy thereby to control the droplets to the workpiece; wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked (Col. 1, Lines 59-64); and wherein the first welding process phase has a high energy input phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase (Fig. 4 below shows the sample cycle between the low heat follow by a high heat during the base current). Huismann et

al. discloses during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece (Par. 9). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank et al., the welding process comprises at least a first welding process phase and a second welding process phase; wherein the first welding process phase has a high energy input and a first material transition and the second welding process phase comprises a cold-metal-transfer phase having a low energy input and a second material transition different from the first material transition; wherein the first and second welding process phases are cyclically combined during the welding process to influence or control the heat input into a workpiece to be worked; and wherein the first welding process phase has a high energy input phase and a base energy phase and the second welding process phase has a short-circuit phase that starts during the base energy phase, as taught by Hsu, for the purpose of optimizing the performance of the welding process; during the cold-metal process phase, the welding wire is conveyed via a wire conveyance in the direction of the workpiece until contacting the workpiece, and the wire conveyance is subsequently reversed after a short circuit has been created to move the welding wire back to a predefined distance from the workpiece, as taught by Huismann et al., for the purpose of better controlling of the melting and the heat to the weld thereby reducing spatter.

17. Regarding claim 2, Hsu discloses a pulse current phase is used as said first welding process phase having a high energy input (Col.2, Lines 19-20).

18. Regarding claim 3, Hsu discloses a spray-arc phase is used as said first welding process phase having a high energy input (Col. 2, Lines 4-6).

19. Regarding claims 6-7, Hsu discloses the duration of the first (Process A) and second (Process B) welding process phases is controlled directly proportionally to the adjusted welding circuit (I) or an adjusted power, respectively (Col. 5, Lines 51-67).

20. Regarding claim 8, Jank et al. discloses at least one welding parameter of the heat input into the workpiece (16) to be worked is selected or adjusted on a welding apparatus (1) (Col. 5, Lines 49-63). Hsu discloses the ratio between the first welding process phase having a high energy input and the second welding process phase having a low energy input being automatically determined and controlled as a function of the selected or adjusted heat input value (Col. 1, Line 66 to Col. 2, Line 1; Col. 5, Line 51 to Col. 6, Line 17).

21. Regarding claim 9, Hsu discloses the ratio of the cyclically alternating first (Process A) and second (Process B) welding process phase is determined as a function of the parameters used for the welding process (Col. 3, Lines 63-64 and Col. 5, Lines 51-67).

22. Regarding claim 10, Hsu discloses the second welding process phase (Process B) having a low energy input (Col. 1, Lines 66 to Col. 2, Line 1) is initiated by an action selected from the group consisting of specifying the number of pulses in the pulse

current phase, predetermining a time period, and applying a trigger signal (Col. 6, Lines 6-9).

23. Regarding claim 11, Jank et al. discloses the welding process is stated according to a lift-arc principle (Col. 4, Lines 59-65).

24. Regarding claim 12, Jank et al. discloses a third welding process phase having a high energy input is implemented over a defined period upon ignition of the electric arc (Col. 4, Lines 59-65). Hsu discloses the cyclic alteration of the at least first and second welding process phases (Col. 1, Lines 51-64).

25. Regarding claim 13, Hsu discloses the welding current (I) during the second welding process phase is lower than the welding current (I) during the first welding process phase (Abstract, First current wave form and second waveform; Col. 1, Lines 66 to Col. 2, Line 1, first process is a high energy process and the second is a low energy process).

26. Regarding claim 14, Jank et al. discloses the wire advance speed (65) is changed during the first and second welding process phases (Col. 5, Lines 49-63).

27. Claims 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Hsu (US Pat. 6,717,107), Huismann et al. (US Pub. 2004/0016788) and further view of Tanaka et al. (US Pat. 4,100,389) (previously cited).

28. Regarding claim 22 and 25, Jank/Hsu/Huismann disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device (22) for adjusting different welding process and parameters **except** the first

welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase. Tanaka et al. discloses the first welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase (Col. 3, Lines 45-65). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Hsu/Huismann, the first welding process phase is a spray-arc phase and a cyclic combination of the second welding process phase with the spray-arc phase, as taught by Tanaka et al., for the purpose of the purpose of having a welding process that reduces spatter during bridge rupturing.

29. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Hsu (US Pat. 6,717,107), Huismann et al. (US Pub. 2004/0016788) and further view of Norrish et al. (US Pub. 2002/0008095) (previously cited).

30. Regarding claim 26, Jank/Hsu/Huismann disclose substantially all features of the claimed invention as set forth above including from Jank, an input/output device (22) for adjusting different welding process and parameters **except** the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the spray short-circuit arc welding process phase with the second welding process phase. Norrish et al. discloses the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the spray short-circuit arc welding process phase with the second welding process phase (Par. 6). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in

Jank/Hsu/Huismann, the first welding process phase is a spray short-circuit arc welding phase and a cyclic combination of the spray short-circuit arc welding process phase with the second welding process phase, as taught by Norrish et al., for the purpose of having a welding process that reduces spatter during bridge rupturing.

31. Claims 32 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jank et al. (US Pat. 6,476,354) in view of Hsu (US Pat. 6,717,107), Huismann et al. (US Pub. 2004/0016788) and further view of Ueyama et al. (US Pat. 5,508,493) (previously cited).

32. Regarding claim 32 and 34, Jank/Hsu disclose substantially all features of the claimed invention as set forth above including from Hsu, the high energy input phase is a high current phase, the base energy phase is a base current phase (Col. 1, Line 66 to Col. 2, Line 1; Col. 5, Line 51 to Col. 6, Line 17) (Fig. 4 below shows the sample cycle between the low heat follow by a high heat during the base current) **except** a ratio of the number of pulses of the first welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control the heat balance or heat input into the workpiece. Ueyama et al. discloses a ratio of the number of pulses of the first welding process phase (Fig. 97 shown 3 pulses for T1) to the number of pulses of the second welding process phase (Fig. 97 shown 4 pulses for T2) is adjusted to adjust or control the heat balance or heat input into the workpiece (Fig. 96 clearly shown the number of pulses is adjust between the two phases T1 and T2) (Col. 71, Lines 5 to Col. 72 Lines 10). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize in Jank/Hsu, a ratio of the number of pulses of the first

welding process phase to the number of pulses of the second welding process phase is adjusted to adjust or control the heat balance or heat input into the workpiece, as taught by Ueyama et al., for the purpose of controlling the arc length between the first and second phase.

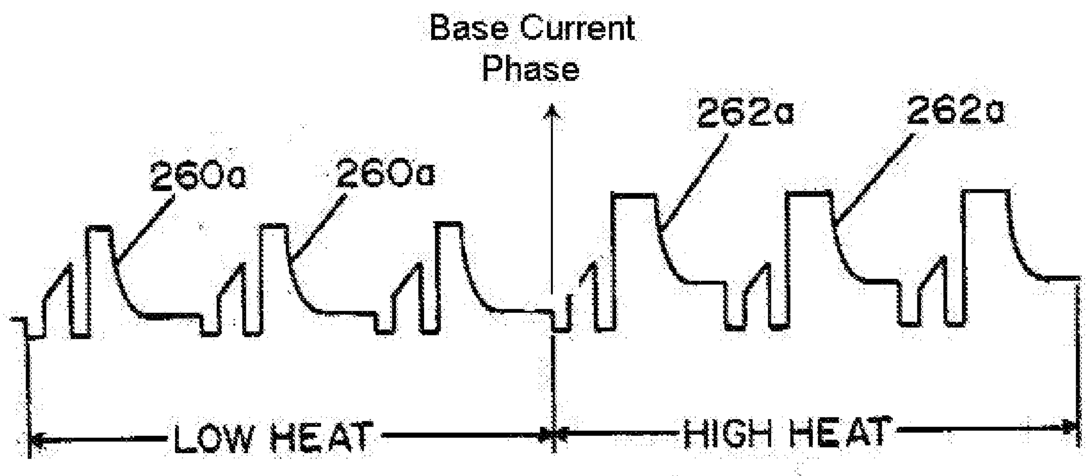

FIG. 4

Response to Arguments

33. Applicant's arguments with respect to claims 2-3, 6-15 and 17-34 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 9AM-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/
Examiner, Art Unit 3742
4/28/2011

/Quang T Van/
Primary Examiner, Art Unit 3742